

## CONTROLLED DOCUMENT

This copy is uncontrolled if no red stamp is present on printed copies. Users are responsible for ensuring they work to the latest approved revision.



## Los Alamos National Laboratory

Risk Reduction and Environmental Stewardship Division

Meteorology and Air Quality Group  
(RRES-MAQ)

## Quality Assurance Project Plan

for the

## Beryllium NESHAP Compliance Project

Prepared by:  (signed)  _____ Steve Story, Title V Implementation Project Leader	Date:  <u>2/17/04</u>
Reviewed by:  (signed)  _____ Terry Morgan, MAQ Quality Officer	Date:  <u>2/17/04</u>
Approved by:  (signed)  _____ Jean Dewart, MAQ Group Leader	Date:  <u>2/23/04</u>

## General Information

Table of Contents	Section	Topic	Page No.
	<b>1</b>	<b>Quality Program</b>	<b>4</b>
		Organization	4
	<b>2</b>	<b>Personnel Development</b>	<b>6</b>
		Personnel Training and Qualification	6
	<b>3</b>	<b>Quality Improvement</b>	<b>7</b>
		Improving Quality	7
	<b>4</b>	<b>Documents and Records</b>	<b>8</b>
		Documents and Records	8
		Electronic Media	10
	<b>5</b>	<b>Work Processes</b>	<b>11</b>
		5.1 Planning and Performing Work	11
		5.2 Subpart C (40 CFR 61) Requirements and Regulatory Review	13
		5.3 Permitted Sources	15
		5.3.1 TA-3-141	16
		5.3.2 TA-35-213	21
		5.3.3 TA-55-PF-4	23
		5.4 Registered Sources	29
		5.4.1 TA-3-29, Wing 2	30
		5.4.2 TA-3-66	32
		5.4.3 TA-16-207	34
		5.4.4 TA-35-87	36
	<b>6</b>	<b>Design</b>	<b>37</b>
		Design	37
	<b>7</b>	<b>Procurement</b>	<b>37</b>
		Procurement of Services	37
	<b>8</b>	<b>Inspection and Acceptance Testing</b>	<b>38</b>
		Inspection and Acceptance Testing	38
	<b>9</b>	<b>Management Assessment</b>	<b>38</b>
		Project Management Assessments	38
	<b>10</b>	<b>Independent Assessment</b>	<b>39</b>
		Project Assessments	39

## General Information, continued

---

**Appendixes**      This plan has the following appendixes:

Number	Appendix Title	No. of pages
A	Be-NESHAP Compliance Project Organization Chart	1
B	References	1

---

**History of revision**      This table lists the revision history of this plan.

Revision	Date	Description of Changes
0	2/24/04	New document.

## Section 1

### Quality Program

#### Organization

---

**Purpose of quality plan**

This Quality Assurance Project Plan (QAPP) gives requirements for the management of the Beryllium Compliance Task within the Meteorology and Air Quality (MAQ) group. This document is tiered to the MAQ Quality Management Plan (MAQ-QMP), which, together with the implementing permits and procedures, provides the requirements and processes that ensure the project effectively maintains LANL compliance with the project's areas of responsibility within all state and federal air quality regulations governing beryllium.

This document also describes the roles and responsibilities of other LANL organizations for beryllium compliance. This plan contains the requirements as established in their permits or registrations, or as specified in LANL's Operating Permit.

---

**Scope of this plan**

This plan applies to MAQ and existing permitted and registered beryllium operations. Existing permitted and registered beryllium operations are identified in Section 5.0.

---

**Applicable regulations**

The drivers for the development and implementation of the beryllium compliance task are:

- 40 CFR 61, Subpart C
- DOE Order 414.1A, Quality Assurance
- Beryllium Permits

---

**DOE Order 414.1A**

The structure of this plan is based on and addresses the ten criteria in the DOE order. Compliance with DOE Order 414.1A is a Department of Energy (DOE) requirement, rather than a regulatory requirement.

## Organization, continued

<b>MAQ group organization</b>	The Meteorology and Air Quality Group (RRES-MAQ or MAQ) of the Risk Reduction and Environmental Stewardship (RRES) Division provides assistance to line organizations to obtain and comply with their air quality permits. See the Group MAQ Quality Management Plan (MAQ-QMP) for a description of the group organization and chain of authorities.
<b>MAQ Project organization</b>	The MAQ Beryllium Task Leader manages the operation of the project within MAQ to ensure that task objectives are met. The Task Leader reports to the Title V Implementation Team Leader.
<b>Task deliverables</b>	<p>The main deliverable or task purpose is a certification of lab-wide compliance with all beryllium permits and registration requirements. Specific reports that result from the project include:</p> <ul style="list-style-type: none"><li>• Input to the Annual Title V Operating Permit Compliance Certification</li><li>• Input to the Operating Permit Semi-Annual Emissions Inventory Report</li><li>• Input to the Operating Permit Semi-Annual Monitoring Report</li><li>• Quarterly Monitoring Data for Permit #634 [see RRES-MAQ-BM]</li></ul>
<b>Revising this plan</b>	The Beryllium Task Leader, the Title V Implementation Team Leader, the MAQ Quality Assurance Officer, and the MAQ Group Leader will approve all revisions to this plan.
<b>Distributing this plan</b>	Controlled copies of this plan will be made available to all affected organizations and individuals in accordance with MAQ-030, "Document Distribution."

## Section 2

### Personnel Development

#### Personnel Training and Qualification

---

**Personnel requirements**

Qualified team members will be hired and trained as prescribed in the MAQ QMP.

Personnel are required with knowledge of the following:

- Federal and State Air Quality Regulations
  - Engineering, such as Mechanical, Environmental or Chemical
  - Beryllium Safety
- 

**Training**

All personnel performing task-related work are required to obtain appropriate training prior to performing work governed by a procedure. Training for MAQ personnel and for persons performing MAQ procedures, will be performed and documented according to MAQ-024, "Personnel Training" and MAQ-032, "Orienting New Employees." Training of personnel in other groups will be performed and documented according to each group's training procedure.

## Section 3

### Quality Improvement

#### Improving Quality

<b>Task performance reports</b>	<p>Personnel assigned to perform Beryllium Compliance Task activities will provide periodic verbal or written updates to the Title V Implementation Team Leader. These updates will be used to keep group management apprised of the focus of Beryllium Compliance Task activities and any task shortcomings. These updates will address items such as:</p> <ul style="list-style-type: none"><li>• Audit/assessment activities relating to quality assurance of Beryllium Compliance Task activities</li><li>• Problems or deficiencies identified during assessment activities or during routine performance of work</li><li>• Task accomplishments made toward Beryllium Compliance Project goals and deliverables</li></ul>
<b>Corrective actions within RRES-MAQ</b>	<p>Corrective actions for all MAQ projects are initiated, tracked, corrected, and documented according to the MAQ Quality Management Plan and group procedure MAQ-026, "Deficiency Tracking and Reporting."</p>
<b>Corrective actions within other organizations</b>	<p>Corrective action within other organizations will be documented and corrected according to the organization's procedures.</p>
<b>Quality improvement</b>	<p>Project activities will adhere to the policy for continuous improvement as given in the MAQ QMP.</p>

## Section 4

### Documents and Records

#### Documents and Records

<b>Policy</b>	<p>The Beryllium Compliance Task will maintain sufficient documents and records to demonstrate compliance with 40 CFR 61 Subpart C, LANL's operating permit, and beryllium permits issued by NMED. The type and extent of records to be maintained are determined through this plan and its implementing procedures.</p>
<b>Document control</b>	<p>This plan is controlled through the MAQ document control procedure (MAQ-030, "Document Distribution"). The following personnel will be notified of revisions to this plan:</p> <ul style="list-style-type: none"><li>• MAQ Group Leader</li><li>• Title V Implementation Team Leader</li><li>• Beryllium Compliance Task personnel</li><li>• MAQ Quality Assurance Officer</li><li>• Beryllium operators</li></ul>
<b>Procedures</b>	<p>Procedures will be developed as necessary and in accordance with the policy in the MAQ QMP and procedure MAQ-022 ("Preparation, Review and Approval of Procedures").</p>
<b>MAQ records series</b>	<p>Documentation of Beryllium Compliance Task activities are maintained as records by Beryllium Compliance Task personnel, under the direction of the MAQ Records Coordinator and in accordance with MAQ-025 ("Records Management"). These records are maintained in several series according to type of record and are usually arranged by permit and year. Records are required to be maintained for at least five years in accordance with Section 3.2 of the Title V Operating Permit. An index of current record storage will be maintained in the records room.</p>
<b>Beryllium operations records</b>	<p>Beryllium operators will maintain records required by their beryllium permit and the LANL Title V Operating Permit. These records will be maintained at the site for at least five years and made available to NMED personnel for inspection.</p>



## Documents and Records, continued

---

**Disposition and retention** Records generated within MAQ or submitted to MAQ will be submitted to the MAQ Records Management System. Records will be archived in compliance with LANL and DOE requirements for records retention, storage, and management.

---

**Implementation** The following table lists specific responsibilities.

Who	What
Title V Team Leader	Ensure all personnel in the project are aware of the records that must be preserved.
Beryllium team members	Ensure all records are properly collected, filed, and preserved.
Beryllium operators	Ensure all records are generated and maintained as required by permit terms. Maintain records for at least five years.

## **Electronic Media**

---

### **Policy**

The project will utilize electronic means as necessary to maintain data and perform calculations on the data. Electronic means will not replace paper copy. All records that must be maintained to meet the requirements of the permits will be kept in hard copy as the official record.

---

### **Databases and spreadsheets**

Electronic data for this task will be managed in accordance with the group policy for electronic data and back up of those data.

## Section 5

### Work Processes

#### 5.1 Planning and Performing Work

---

**Purpose of beryllium work processes**

The Beryllium Compliance Task performs work to demonstrate compliance with 40 CFR 61, Subpart C, which is adopted by reference under 20.2.78 of the New Mexico Administrative Code (NMAC). Affected facilities at the Los Alamos National Laboratory (LANL) have received 20.2.72 NMAC air construction permits from the New Mexico Environment Department (NMED). Currently, there are three active beryllium air construction permits. In addition, there are four active registered beryllium sources as required under 40 CFR 61.10. All regulated beryllium operations will be included in the LANL Title V Air Operating Permit issued by the NMED.

---

**Requirement**

LANL is required to comply with the requirements of 40 CFR 61, Subpart A and Subpart C, and with the requirements of the 20.2.72 air construction permits, which will be listed in a Title V Air Operating Permit. The requirements are inconsistent among permits. The earlier permit issued for TA-35-213 has very few conditions or record keeping and reporting requirements. The more recent permits for TA-3-141 and TA-55-PF-4 have more detailed requirements.

---

**Compliance certification**

In accordance with Section 5.1 of LANL's Title V Operating Permit, LANL must submit an annual compliance certification report to NMED certifying the compliance status of LANL with respect to all permit terms and conditions. The beryllium task will use self-inspection checklists to document compliance status with all permit terms and conditions. These checklists will be completed for the time period covered by the annual certification report.

---

**Emissions report**

In accordance with Section 4.1 of LANL's Title V Operating Permit, LANL must submit semiannual emission reports within 90 days from the end of the reporting period [January 1<sup>st</sup> to June 30<sup>th</sup>, and July 1<sup>st</sup> to December 31<sup>st</sup>]. LANL is also required to submit an annual report to the NMED in accordance with 20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements. Semi-annual input from permitted sources is required to calculate emissions for these reports. Emissions from registered sources are negligible and are not included in LANL's emission reports.

## 5.1 Planning and Performing Work, continued

### Monitoring report

In accordance with Section 4.2 of LANL's Title V Operating Permit, LANL must submit semiannual emission reports within 45 days from the end of the reporting period [January 1<sup>st</sup> to June 30<sup>th</sup>, and July 1<sup>st</sup> to December 31<sup>st</sup>]. For permitted beryllium operations, the monitoring report must include HEPA filter test results when required. The report will also reference the TA-3-141 quarterly sample reports submitted to NMED.

Any deviations (including emergencies) from permit requirements must be submitted to NMED when they occur. LANL will communicate initial notice of the deviation to NMED within 24 hours of the start of the first business day following the start of the occurrence. Within ten calendar days of the start of the first business day following the start of the occurrence, written notice using NMED's Excess Emissions Form will be submitted to NMED.

### Work process description

The work processes included in this section are divided into three areas:

- Section 5.2, 40 CFR 61, Subpart C Requirements – describes the federal requirements for the National Emission Standard for Beryllium.
- Section 5.3, Permitted Sources – describes the requirements set forth by each of the 20.2.72 NMAC beryllium air construction permits.
- Section 5.4, Registered Sources – describes each of the registered beryllium sources as required by 40 CFR 61.10.

**Implementation** The following table lists responsibilities.

Who	What
Beryllium Task Leader	Provide input to Title V Implementation Team Leader for completion of annual compliance certification Provide input to the Reporting team for semi-annual emissions calculations Provide input to Title V Implementation Team Leader for completion of semi-annual monitoring report Report deviations from permit terms to Title V Implementation Team Leader

## 5.2 Subpart C (40 CFR 61) Requirements and Regulatory Review

<b>Purpose</b>	Several affected facilities at the Los Alamos National Laboratory (LANL) are subject to the provisions of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for beryllium. These regulations are promulgated under 40 CFR 61, Subpart C and have been adopted by reference in the New Mexico Administrative Code (NMAC) under 20.2.78.
<b>Applicability</b>	<p>The NESHAP for beryllium regulations are applicable to extraction plants, ceramic plants, <u>foundries</u>, incinerators, and propellant plants which process beryllium ore, beryllium, beryllium oxide, beryllium alloys, or beryllium containing waste.</p> <p>The NESHAP for beryllium regulations are applicable to <u>machine shops</u> at affected facilities that process beryllium, beryllium oxides, or any alloy containing more than 5 percent beryllium by weight. [§61.30 (b)]</p> <p><u>Foundry</u> means a facility engaged in the melting or casting of beryllium metal or alloy.</p> <p>A <u>machine shop</u> is a facility capable of performing cutting, grinding, turning, honing, milling, deburring, lapping, electrochemical machining, etching, or similar operations of the above described materials. [§61.31 (d)]</p>
<b>Emission standards</b>	<p>Emissions to the atmosphere from stationary sources subject to Subpart C shall not exceed 10 grams (0.022 lb) of beryllium over a 24-hour period. [§61.32 (a)]</p> <p>Alternatively, an ambient concentration limit on beryllium in the vicinity of the stationary source of 0.01µg/m<sup>3</sup> (4.37x10<sup>-6</sup> gr/ft<sup>3</sup>), averaged over a 30-day period, can be requested from the Administrator. [§61.32 (b)] Since LANL has not requested to use ambient concentration limits, this emission standard will not be addressed further.</p>
<b>Testing of stack emissions</b>	Emissions will be tested from the source according to Method 104 of appendix B to Subpart C. Method 103 of appendix B to Subpart C is approved by the Administrator as an alternative method. [§61.33]

## 5.2 Subpart C (40 CFR 61) Requirements and Regulatory Review, continued

---

**Evaluation of new sources** Activities involving beryllium must be evaluated for regulatory applicability as defined by the beryllium NESHAP promulgated under 40 CFR 61, Subpart C and which has been adopted by reference under 20.2.78 NMAC.

If the activity is a new beryllium operation, it should be determined if the activity will be performed in a machine shop as defined by 40 CFR 61.31(d) and if the material to be processed contains 5% or more beryllium by weight. New sources that will process a material containing 5% or more beryllium by weight in a qualifying machine shop may be required to obtain a NMAC 20.2.72 air construction permit.

---

**Changes to sources** Changes to beryllium operations at affected facilities that already have a 20.2.72 air construction permit (or have a registered source) must be evaluated for increases to the potential emission rate of the facility. Changes to beryllium operations that result in an increase to the potential emission rate of the facility will require a modification to the permit (or possibly the issuance of a permit if previously registered).

---

**Inapplicable activities** Certain beryllium operations have been identified at LANL as inapplicable to the beryllium NESHAP. Spot welding activities that occur at approximately 400°C do not meet the definition of a foundry as listed in 40 CFR 61.31 (f). Additionally, burning trees potentially contaminated with beryllium are not subject to the permitting requirements or the emissions standards of the beryllium NESHAP. However, it has been determined that sanding operations involving beryllium are considered a regulated beryllium source.

---

**Implementation** The following table lists responsibilities.

Who	What
Beryllium team members	Review new and modified sources for compliance with the requirements of the beryllium NESHAP and provide comments to the Air Quality Review and Permitting team.

## 5.3 Permitted Sources

<b>Purpose</b>	The permitted sources work process describes the requirements set forth by each of the 20.2.72 NMAC beryllium air construction permits. These requirements include the operational limitations, monitoring, and record keeping and reporting requirements.
<b>Historical permits</b>	<p>In addition to the three active beryllium construction permits, there were three permits no longer active which were issued for beryllium operations at TA-3-39, TA-3-102 and TA-3-35.</p> <ul style="list-style-type: none"><li>• Beryllium operations at TA-3-39 &amp; TA-3-102 were originally permitted on March 19, 1986 under 20.2.72 NMAC Air Construction Permits 635 and 636. Permits 635 and 636 are no longer active due to the relocation of beryllium operations to TA-3-141, which are currently regulated under 20.2.72 NMAC Air Construction Permit 634-M2.</li><li>• Beryllium operations were planned for construction at TA-3-35 with the issuance of 20.2.72 NMAC Air Construction Permit 741. However, construction never commenced and Permit 741 was subsequently surrendered.</li></ul>
<b>Description of sub-processes</b>	<p>The permitted sources work process is divided into three sub-processes that represent each of the active permitted beryllium sources at LANL. These three sub-processes are:</p> <ul style="list-style-type: none"><li>• 5.3.1 TA-3-141</li><li>• 5.3.2 TA-35-213</li><li>• 5.3.3 TA-55-PF-4</li></ul>

### 5.3.1 TA-3-141

<b>Regulatory driver</b>	TA-3-141 obtained a 20.2.72 NMAC Air Construction <b>Permit 634</b> . This air construction permit will be listed in a Title V Air Operating Permit issued by the New Mexico Environment Department (NMED).
<b>Background</b>	<p>The 20.2.72 NMAC Air Construction <b>Permit 634</b> was issued by NMED on March 19, 1986.</p> <p>On September 8, 1987, NMED issued <b>Permit 634-M1</b>. This modification was issued to remove the limitation on production hours and add a maximum process rate.</p> <p>On October 30, 1998, NMED issued <b>Permit 634-M2</b>. This modification as issued to allow the installation of additional particulate control with a large cartridge filter system, and also the installation of a particulate sampling system in the exhaust stack to measure actual beryllium emissions</p>
<b>General description of work</b>	The beryllium operations at TA-3-141, including beryllium machining and foundry operations, are oriented toward research and development. Beryllium metal and beryllium formed from powders and shaped during consolidation operations, is machined. Foundry operations include melting scrap beryllium into ingots in furnaces. Other activities involving beryllium, such as powder operations and joining and coating operations, are also conducted at this facility.
<b>Allowed operations and emission control requirements</b>	Descriptions of the allowed beryllium processes and equipment and emissions points, along with the applicable permit citation, are presented below:



### 5.3.1 TA-3-141, continued

Process Description	Equipment and Emission Points
<p><b>Machining and foundry operations</b></p> <p>Application <b>Section 6.1</b> <b>Sources:</b> Powder Operations, Consolidation Operations, Joining and Coating Operations, Inspection Operations</p> <p>Application <b>Section 6.2</b> <b>Sources:</b> Etching Process, Atomizing Process, Coating/Plating Process, Pressing Process, Welding Process, Non-Destructive Measurement Process, Near Net Shape Process, and Other Processes in support of the formation of parts.</p>	<p>Emissions from these processes shall be ducted through a HEPA filtration system prior to entering the atmosphere.</p>
<p>Powder operations other than closed glove box operations</p> <p>Machining operations other than the processes used in metallographic preparation</p>	<p>In addition to ducting through the HEPA filtration system, emissions from these operations shall also be exhausted through a cartridge filtration system.</p>
<p>Metallographic preparation activities</p>	<p>These activities shall be conducted in lubricating baths or equivalent.</p> <p>Emissions from these processes shall be ducted through a HEPA filtration system prior to entering the atmosphere.</p>

#### Operating Schedule

Beryllium operations may operate 24 hours per day, 7 days per week and 52 weeks per year for a total of 8760 hours per year. [Condition 1.c.]

#### Process weight limits

Beryllium processing weights are limited to 10,000 pounds per calendar year and/or 1,000 pounds per day. [Condition 1.e.]

### 5.3.1 TA-3-141, continued

---

**Emission limits**

The emission limits listed below set forth by the air construction permit are more stringent than those in the beryllium NESHAP in 40 CFR 61, Subpart C which limit beryllium emissions to 10 gm/ 24 hrs. The more stringent emission limits are based on emissions estimated by RRES-MAQ personnel in the air construction permit application for TA-3-141. [Condition 2]

Operation	Beryllium limit	
All operations at TA-3-141	0.35 gm/24 hr	3.5 gm/year

---

**Monitoring**

- Facility exhaust stack will be equipped with a continuous emission monitor used to measure beryllium emissions. [Conditions 1.f. and 3]
  - Cartridge and HEPA filters will be equipped with differential pressure gauges that measure the differential pressure (inches of water) across the cartridge and HEPA filters while the exhaust fans are in operation. [Condition 3]
  - The pressure drop across the cartridge and HEPA filters will be recorded once each day while the exhaust fans are in operation and the facility is occupied. [Condition 4]
- 

**Continuous stack sampling**

The beryllium emissions from the exhaust stack will be continuously sampled using the methods identified in a letter requesting to amend the permit application dated and received on March 19, 1998 and in accordance with the requirements stipulated in the Quality Assurance Project Plan for Beryllium Stack Monitoring at TA-3-141 (RRES-MAQ-BM). Sampling of the stack began within one hundred eighty (180) days of startup of the facility. [Condition 3]

---

**Emissions testing**

Initial compliance source tests have been conducted in accordance with Condition 6 at the stack to which beryllium emissions at TA-3-141 are exhausted.

- The initial compliance source test was conducted in January 1988.
- An additional source test was conducted on June 27, 2001.

### 5.3.1 TA-3-141, continued

---

**Record-keeping requirements**

- The facility will generate and retain beryllium inventory records to demonstrate compliance with the process weight limits of 10,000 pounds of beryllium per calendar year and/or the 1,000 pounds of beryllium per day process limit. [Condition 4]
- Record pressure drop across the cartridge and HEPA filters once per day while the exhaust fans are in operation and the facility is occupied. [Condition 4]
- Record pollution control equipment maintenance and repair activities. [Condition 4]
- Record annual HEPA filter test results. [Application Section 2.3.5]
- Maintain copy of permit in the Building 141 Administrative Offices and RRES-MAQ. [Condition 10]
- Maintain records for at least five years. [Operating Permit Requirement]

---

**Reporting requirements**

- LANL will provide a quarterly report within 60 days after each calendar quarter of the facility's compliance status with the permitted emission rate from the continuous monitoring system. [Condition 5.f.]
- Total beryllium emissions must be included with the hazardous air pollutant emissions that are reported on an annual basis to the NMED in accordance with 20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements.
- Control system malfunctions, which would consist of HEPA filters for this facility, are to be reported promptly, in accordance with the requirements of 20.2.7 NMAC, Excess Emissions During Malfunction, Startup, Shutdown, or Scheduled Maintenance.
- Annual HEPA Filter test results are to be submitted to MAQ.

### 5.3.1 TA-3-141, continued

**Implementation** The following table gives responsibilities.

Who	What
RRES-MAQ Be Task Leader	<p>Ensure that continuous emissions monitoring is performed in accordance with the QAPP for Beryllium Stack Monitoring at TA-3-141 (MAQ-BM).</p> <p>Report beryllium emissions quarterly to NMED within 60 days after each calendar quarter.</p> <p>When required, coordinate stack source testing and submit test reports to appropriate sections of NMED within specified period of time.</p> <p>Retain copies of stack source test emission results.</p> <p>Retain copy of the permit.</p> <p>Include beryllium emissions in the 2.72 annual emissions inventory report and the Title V Operating Permit semi-annual emissions reports.</p>
Source Operator	<p>Notify RRES-MAQ prior to any change in beryllium operations.</p> <p>Report cartridge filter and HEPA system malfunctions to RRES-MAQ.</p> <p>Retain copy of the permit in one of the Building 141 administrative offices.</p> <p>Complete annual self-inspection checklist.</p> <p>Maintain the following records:</p> <ul style="list-style-type: none"> <li>• Generate and retain inventory records to demonstrate compliance with the beryllium process weight limits.</li> <li>• Record pressure drop across the cartridge and HEPA filters once per day while the exhaust fans are in operation and the facility is occupied.</li> <li>• Record pollution control equipment maintenance activities and test results.</li> </ul>
FM / HSR-5	Maintain HEPA filter maintenance and test records.

## 5.3.2 TA-35-213

<b>Regulatory driver</b>	TA-35-213 obtained a 20.2.72 NMAC Air Construction <b>Permit 632</b> . This air construction permit is listed in a Title V Air Operating Permit issued by the New Mexico Environment Department (NMED).	
<b>Background</b>	The 20.2.72 NMAC Air Construction Permit 632 was issued by NMED on December 26, 1985. There have been no modifications to this permit to date. However, it was identified that a filter substitution was never made in the application. Flanders HEPA filters have been used in place of Cambridge HEPA filters since operations began.	
<b>General description of work</b>	Activities include machining of small quantities of classified beryllium parts.	
<b>Allowed operations</b>	Beryllium machining and associated cleanup activities.	
<b>Operating schedule</b>	Beryllium operations at TA-35-213 have a maximum allowable operating schedule of 8 hours/day, 5 days/week, 4 weeks/month, and 12 months/year. The normal operating schedule is 4 hours/day, 3 days/week, 4 weeks/month, and 12 months/year.	
<b>Process weight limits</b>	Beryllium processing weights are not limited.	
<b>Emission limits</b>	The emission limits listed below set forth by the air construction permit are more stringent than those in the beryllium NESHAP in 40 CFR 61, Subpart C which limit beryllium emissions to 10 gm/ 24 hrs. The more stringent emission limits are based on emission rates specified by RRES-MAQ personnel in the air construction permit application for TA-35-213. [Condition 1]	
	<b>Operation</b>	<b>Beryllium limit</b>
	Beryllium machining and associated cleanup activities	4 x 10 <sup>-7</sup> lbs/hr 1.8 x 10 <sup>-4</sup> gm/hr
		4 x 10 <sup>-7</sup> tons/year 0.36 gm/yr

## 5.3.2 TA-35-213, continued

<b>Emissions pollution control equipment</b>	All processes are exhausted through one pre-filter and one HEPA filter.
<b>Monitoring</b>	There are no requirements for ongoing pollution control equipment monitoring.
<b>Emissions testing</b>	A performance test was conducted on September 9, 1986. The emissions were tested within 90 days of startup. Results of the emission test were submitted to the NMED within 30 days after the completion of testing. The average emission was $<2 \times 10^{-8}$ pounds per hour, which is less than the maximum allowable of $4 \times 10^{-7}$ pounds per hour.
<b>Record-keeping requirements</b>	Retain records of emissions test results and other data needed to determine total emissions. Other data will consist of laboratory log books specifying hours of operation and work performed. Maintain these records for at least five years. [Condition 2]
<b>Reporting requirements</b>	Total beryllium emissions must be included with the hazardous air pollutant emissions that are reported on an annual basis to the NMED in accordance with 20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements.

**Implementation** The following table gives responsibilities.

Who	What
RRES-MAQ Be Task Leader	Retain copies of emission test results. Report beryllium emissions for the 2.72 annual emissions inventory report and the Title V Operating Permit semi-annual emissions reports.
Source Operator	Notify RRES-MAQ prior to any change in beryllium operations. Provide semi-annual input to RRES-MAQ for emissions calculations. Maintain laboratory logbook. Complete annual self-inspection checklist.
FM / HSR-5	Maintain HEPA filter maintenance and test records.

### 5.3.3 TA-55-PF-4

---

**Regulatory driver** TA-55-PF-4 obtained a 20.2.72 NMAC Air Construction **Permit 1081** on November 25, 1992. This air construction permit is listed in a Title V Air Operating Permit issued by the New Mexico Environment Department (NMED)

---

**Background**

- On November 25, 1992, NMED issued **Permit 1081** authorizing LANL to construct and operate a beryllium machining and processing facility. Permitted activities would include weld bead dress operations, compatibility testing, and impact testing. Emissions are permitted from both the north and south stacks.
- On July 1, 1994, NMED issued **Permit 1081-M1** allowing for the use of lubricant baths as a substitute for kerosene baths in the cutting and grinding operations. In addition, the original permit only allowed for grinding to eliminate rough edges. This revision allows cutting or grinding. NMED issued a letter on July 28, 1994 correcting the emission limits on page 3 of the permit.
- On March 11, 1998, NMED issued **Permit 1081-M1-R1** to reflect updated pollution control equipment and control efficiencies and reduce the number of required filter challenge tests.
- On February 4, 2000, NMED issued **Permit 1081-M1-R2** to add a 77-hp diesel generator.
- On February 11, 2000, NMED issued **Permit 1081-M1-R3** to:
  - Replace beryllium emission estimates based on hours of cutting or machining beryllium with more realistic and more accurate factors based on the weight of beryllium throughput;
  - Replace the one hour emission limit with a 24-hour emission limit to reflect the emission limit from 40 CFR 61, subpart C; and,
  - Add a vacuum induction melt furnace operation.
- On November 27, 2000, NMED issued **Permit 1081-M1-R4** to retire a 77-hp diesel generator that was added in revision 2 that is no longer in use.
- On February 21, 2002, NMED issued **Permit 1081-M1-R5** to update the description of the weld bead dress operation and the emissions pollution control equipment.

---

**General description of work** Activities conducted in TA-55 Plutonium Facility (PF)-4 include beryllium welding and machining, as well as metallographic specimen preparation, furnace operations, and weld bead dress operations. Non-regulated activities, such as beryllium welding/brazing, compatibility studies, and impact testing, are also conducted in TA-55-PF-4.

### 5.3.3 TA-55-PF-4, continued

#### Allowed operations

Beryllium machining operations regulated include **weld cutting, weld bead dressing, and metallography**. [Condition 1.b]

The description of the **weld bead dress** operation was modified in revision 5 to more appropriately describe the process.

**Metallographic specimen preparation** includes surface cutting along with grinding; cutting and grinding operation conducted in kerosene bath (or substitute lubricant instead of kerosene). [Condition 1.a]

Foundry operations regulated include use of a **vacuum induction melt furnace**. [Condition 1.b]

**Welding/brazing, beryllium compatibility testing, and impact testing** are operations not subject to 40 CFR 61, Subpart C and 20.2.78 NMAC.

#### Operating schedule

Beryllium operations are authorized to operate 24 hours per day, 7 days per week and 52 weeks per year for a total of 8760 hours per year. [Condition 1.b.]

#### Process weight limits

Beryllium processing weights are limited to 20 kilograms (44 pounds) for any 24-hour period, and 500 kilograms (1100 pounds) for any given 12-month rolling average. [Condition 1.c.]

#### Emission limits

The emission limits listed in the table below set forth by the air construction permit are more stringent than those in the beryllium NESHAP in 40 CFR 61, Subpart C which limit beryllium emissions to 10 gm/ 24 hrs. The more stringent emission limits are based on emissions estimated by RRES-MAQ personnel in the air construction permit application for TA-55-PF-4. Compliance with these emissions limits is achieved by adhering to the process weight limits specified above and proper implementation and use of the emissions pollution control equipment specified below, and verified by emissions testing described below.

Operation	Beryllium limit		Aluminum limit	
	gm/24 hrs	gm/year	gm/24 hrs	gm/year
Machining	0.12	2.99	0.12	2.99
Foundry	$3.49 \times 10^{-5}$	$8.73 \times 10^{-4}$	$3.49 \times 10^{-5}$	$8.73 \times 10^{-4}$
Total	0.12	2.99	0.12	2.99



### 5.3.3 TA-55-PF-4, continued

---

**Emissions  
pollution  
control  
equipment**

Weld cutting, weld dressing, metallography, and vacuum furnace operations will be controlled with 4 HEPA filters with a control efficiency of 99.95% each. [Condition 3]

- Emissions from regulated beryllium processes will be ducted through pollution control equipment and exhausted through either the north or south stack of TA-55-PF-4. [Condition 1.b.]
- The non-accessible filters [4<sup>th</sup> HEPA filter located at the source] will be replaced when the pressure drop across the filter either falls to levels indicating filter breakthrough or increases to levels indicative of excessive loading. [Condition 3]
- The metallographic specimen preparation of beryllium metal will be conducted in a lubricating bath. [Condition 3]
- The weld bead dress operation lathe enclosure is connected to the facility ventilation system via ductwork and is maintained at a negative pressure, with respect to the room. The facility ventilation system is equipped with three HEPA filters, in series, and is routed to the building's south exhaust stack before being released into the ambient air. The three HEPA filters in series are tested annually to ensure an installed efficiency of 99.95%. [Revised with R5]

---

**Monitoring**

The HEPA filtration systems will be equipped with a differential pressure gauge that measures the differential pressure (inches of water) across the HEPA filters while the exhaust fans are in operation. [Condition 11]

*Daily*

- HEPA filter control efficiencies will be verified by daily HEPA filter pressure drop monitoring and recording. [Condition 3]

*Annually*

- The control efficiencies of the HEPA filters will be verified by annual HEPA filter challenge tests of accessible filters. The non-accessible filters will be replaced when the pressure drop across the filter falls to levels indicating filter breakthrough or increases to levels indicative of excessive loading. [Condition 3]

### 5.3.3 TA-55-PF-4, continued

---

**Emissions testing**

Initial compliance source tests have been conducted in accordance with Condition 4 at each of the emission points (north and south stacks of TA-55-PF-4) after initial startup of the following process operations: weld cutting, weld dressing, and metallography. These initial compliance source tests were conducted within 90 days of initial startup. The table below lists the dates that the source tests were completed:

- Weld Cutting: February 17-19, 1993 (South stack)
- Weld Dressing: September 26-27, 2002 (South stacks)
- Metallography: February 15, 1994 (North stack)
- Induction Furnace: Waiting Start-up

---

**Record-keeping requirements**

- Copy of the permit at TA-55 in the administrative office adjacent to building 4. [Condition 8]
- Stack emission test results. [Condition 9]
- Facility operating parameters, including a daily record of the pressure drop measured across each appropriate HEPA filtration stage when the exhaust fans are operating. [Condition 9]
- Records of the number and weight of classified parts processed during a 24-hour period and a 12-month rolling average. [Condition 9]
- Records of the annual HEPA test and a pollution control equipment maintenance log. [Condition 3]
- A log of the filter (non-accessible filters) replacement shall be kept. [Condition 3]
- Maintain records for at least five years (Operating Permit Section 3.2)

### 5.3.3 TA-55-PF-4, continued

#### Reporting requirements

- HEPA filtration system malfunctions will be reported as soon as possible, but not later than 24 hours after the start of the next regular business day and will also report in accordance with the requirements of 20.2.7 NMAC, Excess Emissions during Malfunction, Startup, Shutdown, or Scheduled Maintenance. [Condition 10.f.]
- Annual HEPA filter test reports submitted to NMED annually. [Title V Operating Permit monitoring report requirement]
- Notification of startup of the Vacuum induction melts furnace and an initial compliance source test shall be conducted within 90 days of initial startup.
- Total beryllium emissions must be included with the hazardous air pollutant emissions that are reported on an annual basis to the NMED in accordance with 20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements.

**Implementation** The following table gives responsibilities.

Who	What
RRES-MAQ Be Task Leader	Coordinate compliance source testing when required. Maintain copy of emission test results. Calculate beryllium emissions to include in the 2.72 annual emissions inventory report and the Title V Operating Permit semi-annual emissions reports.
Source Operator	Notify RRES-MAQ prior to any change in beryllium operations. { Air Quality Review is sufficient} Provide semi-annual input to RRES-MAQ for emissions calculations. Maintain the following records: <ul style="list-style-type: none"> <li>• Log of the filter (non-accessible filters) replacement. [Condition 3]</li> <li>• Records of the number and weight of classified parts processed during a 24-hour period and a 12-month rolling average.</li> </ul>

### 5.3.3 TA-55-PF-4, continued

Who	What
Facility Operations	<p>Report HEPA system malfunctions to RRES-MAQ.</p> <p>Maintain copy of permit in TA-55 in the administrative office adjacent to building 4. [Condition 8]</p> <p>Provide annual HEPA filter tests results to RRES-MAQ.</p> <p>Maintain the following records:</p> <ul style="list-style-type: none"><li>• HEPA filter maintenance records.</li><li>• Annual HEPA filter tests.</li><li>• Log of the daily pressure drop measured across each appropriate HEPA filtration stage when the exhaust fans are operating.</li></ul>
NMT-7	Complete annual self-inspection checklist.

## 5.4 Registered Sources

<b>Purpose</b>	The registered sources work process is used to describe each registered beryllium source as required by 40 CFR 61.10. A description of the operational limitations, monitoring, and record keeping and reporting requirements is included.
<b>Requirements</b>	<p>There are activities involving beryllium at LANL that existed prior to April 6, 1973, when the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for beryllium went into effect. Because these activities were in existence prior to the effective date, they are regulated under 40 CFR 61.10, Subpart A General Provisions, Source reporting and waiver request, which is adopted by reference under 20.2.78 of the New Mexico Administrative Code (NMAC). Affected facilities are registered with the New Mexico Environment Department (NMED). A Title V Air Operating Permit issued by NMED will govern regulated activities at registered sources. The following requirements apply to LANL registered sources:</p> <ul style="list-style-type: none"><li>• Operating schedule: The registered beryllium operations may operate up to 8760 hours per year.</li><li>• Process weight limits: The registered beryllium operations are not subject to any process weight limits.</li><li>• Emission limits: Beryllium emissions from the registered beryllium operations must not exceed the beryllium NESHAP set forth in 40 CFR 61, Subpart C, which limits beryllium emissions to 10 gm/ 24 hrs.</li></ul>
<b>Historical registrations</b>	<p>In the past, registered beryllium operations were performed at TA-3-1819. However, during an NMED inspection in 2000, TA-3-1819 had not conducted beryllium operations within the previous five years and lost its registration.</p>
<b>Description of sub-processes</b>	<p>The registered sources work process is divided into four sub-processes that represent each of the active registered beryllium sources at LANL. These four sub-processes are:</p> <ul style="list-style-type: none"><li>• 5.4.1 TA-3-29, Wing 2</li><li>• 5.4.2 TA-3-66</li><li>• 5.4.3 TA-16-207</li><li>• 5.4.4 TA-35-87</li></ul>

## 5.4.1 TA-3-29, Wing 2

<b>General description of work</b>	Small metal specimens are exposed to molten plutonium and reaction rates are measured to temperatures approaching the melting point of beryllium. After testing, the metal samples are examined using metallographic procedures, including cutting, polishing, and grinding of the samples. Beryllium metal is also used in direct alloying with other metals such as barium and thorium. During this process, temperatures can range from 400 to 1900 degrees Celsius.
<b>Allowed operations</b>	Registered beryllium operations include: <ul style="list-style-type: none"><li>• Chemical and metallographic activities, Wing 2.</li></ul>
<b>Background</b>	On August 15, 2000, NMED conducted a site inspection of beryllium operations at TA-3-29, Wings 3 and 7. NMED found that the registered beryllium operations no longer occur in Wings 3 and 7 and have not been conducted in Wings 3 and 7 for over five years. As a result, the registration for beryllium operations in Wings 3 and 7 are no longer valid.
<b>Emissions pollution control equipment</b>	Hood exhaust from the melting operations will be exhausted through a HEPA filtration system prior to entering the atmosphere.
<b>Monitoring / record-keeping requirements</b>	A log will be maintained during operations which indicates the number of Be samples processed. Maintain this log for at least five years.
<b>Reporting requirements</b>	Total beryllium emissions from this source are negligible and are not included with the hazardous air pollutant emissions that are reported on an annual basis to the NMED in accordance with 20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements and Section 4.1 of LANL's Title V Operating Permit.

### 5.4.1 TA-3-29, Wing 2, continued

**Implementation** The following table gives responsibilities.

Who	What
RRES-MAQ Be Task Leader	Document self-inspection checklist results annually to support annual Title V Operating Permit compliance certification.
Source Operator	Maintain log book during operations. Notify RRES-MAQ prior to any change in beryllium operations. Assist MAQ with completion of annual self-inspection checklist. Maintain records of HEPA filter tests and maintenance.

## 5.4.2 TA-3-66

<b>General description of work</b>	Three regulated activities are conducted in this facility. These activities include beryllium electroplating/chemical milling, polishing of metallographic specimens, and machining/arc melting/casting. Machining/arc melting/casting activities were relocated to this facility from TA-3-141 in 1996.
<b>Allowed operations</b>	<p>Registered beryllium operations include:</p> <ul style="list-style-type: none"><li>• Electroplating &amp; chemical milling, which typically involves the removal of the surface from mechanical test specimens using acids.</li><li>• Final polishing of metallographic specimens is performed using a wheel covered with an abrasive cloth treated with propylene glycol and water, which prevents beryllium particles from becoming airborne. Ion beam sputtering operations are also used to remove fine layers of surface material.</li><li>• Machining and arc melting/casting activities. Machining operations are used to prepare small samples for metallographic observation using cutting and grinding methods. Melting and casting operations process small batch quantities of metal to form ingots for further mechanical and heat testing (e.g, differential thermal analysis, heat treating). These ingots may also undergo metallographic specimen preparation and other testing and quantification techniques.</li></ul>
<b>Emissions pollution control equipment</b>	<p>Emissions from machining and arc melting/casting operations will be exhausted through a HEPA filtration system prior to entering the atmosphere.</p> <p>Polishing and electroplating/chemical milling operations will be conducted in aqueous solution or lubricant bath.</p>
<b>Monitoring / Record-keeping requirements</b>	A log will be maintained during operations that show the number of metallographic specimens used in the polishing operation and the weight of Be samples processed in the electroplating/chemical milling, machining, and arc melting/casting operations. Maintain this log for at least five years.



## 5.4.2 TA-3-66, continued

---

**Reporting requirements**

Total beryllium emissions from this source are negligible and are not included with the hazardous air pollutant emissions that are reported on an annual basis to the NMED in accordance with 20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements and Section 4.1 of LANL's Title V Operating Permit.

---

**Implementation** The following table gives responsibilities.

Who	What
RRES-MAQ Be Task Leader	Document self-inspection checklist results annually to support annual Title V Operating Permit compliance certification.
Source Operator	Maintain log book during operations. Notify RRES-MAQ prior to any change in beryllium operations. Assist MAQ with completion of annual self-inspection checklist.
Facility	Maintain HEPA filter maintenance and test records.

### 5.4.3 TA-16-207

<b>General description of work</b>	<p>Beryllium is used in TA-16-207 in two applications: mounting blocks for instrumentation diagnostics and integral parts in special nuclear components. In both applications, only incidental wet sanding is used to prepare the samples. On occasion, a metal shim will be applied to a mounting block using a low power resistance spot welder. This activity was originally registered at TA-16-450, and was relocated to TA-16-207.</p>
<b>Allowed operations</b>	<p>Registered beryllium operations include:</p> <ul style="list-style-type: none"><li>• Wet sanding</li></ul>
<b>Background</b>	<p>LANL reviewed the activities performed at TA-16-207 in September 2000 and submitted a letter to NMED to remove this operation from the Laboratory's records as a registered activity. NMED responded on October 16, 2000 in support of removing the spot welding activities from registration. NMED did not agree that the wet sanding operation could be removed from the registration.</p>
<b>Emissions pollution control equipment</b>	<p>Operations are performed by hand using a fine abrasive sheet coated with a wetting solution (consisting of alcohol or a mixture of 80% distilled water, 15% isopropanol, 5% ammonia or 90% distilled water and 10% phosphoric acid).</p>
<b>Monitoring / Record-keeping requirements</b>	<p>Project files will be maintained of components prepared for testing. Maintain these files for at least five years.</p>
<b>Reporting requirements</b>	<p>Total beryllium emissions from this source are negligible and are not included with the hazardous air pollutant emissions that are reported on an annual basis to the NMED in accordance with 20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements and Section 4.1 of LANL's Title V Operating Permit.</p>

### 5.4.3 TA-16-207, continued

---

**Implementation** The following table gives responsibilities.

Who	What
RRES-MAQ Be Task Leader	Document self-inspection checklist results annually to support annual Title V Operating Permit compliance certification.
Source Operator	Maintain project files for components prepared for testing. Notify RRES-MAQ prior to any change in beryllium operations. Assist MAQ with completion of annual self-inspection checklist.

## 5.4.4 TA-35-87

**General description of work** Beryllium foil is cut and punched to make filters used during laser experimentation. Small filters are cut or punched out of beryllium foil using standard scissors, metal snips, or punches.

**Allowed operations** Registered beryllium operations include:

- Beryllium foil cutting and punching

**Emissions pollution control equipment** All cutting and punching of beryllium foil will occur within an enclosed cabinet.

**Monitoring / Record-keeping requirements** A log will be maintained during operations which shows the number of beryllium filters cut. Maintain this log for at least five years.

**Reporting requirements** Total beryllium emissions from this source are negligible and are not included with the hazardous air pollutant emissions that are reported on an annual basis to the NMED in accordance with 20.2.73 NMAC Notice of Intent and Emissions Inventory Requirements and Section 4.1 of LANL's Title V Operating Permit.

**Implementation** The following table gives responsibilities.

Who	What
RRES-MAQ Be Task Leader	Document self-inspection checklist results annually to support annual Title V Operating Permit compliance certification.
Source Operator	Maintain log book during operations. Notify RRES-MAQ prior to any change in beryllium operations. Assist MAQ with completion of annual self-inspection checklist.

## ***Section 6***

### **Design**

#### **Design**

---

**Identify  
design  
requirements**

The project requires no design activities.

## ***Section 7***

### **Procurement**

#### **Procurement of Services**

---

**Procurement  
of items and  
services**

The Be-NESHAP Compliance Project will procure services from qualified persons and/or organizations as needed to accomplish project goals. Procurement of items and services will follow the Laboratory procurement process and the requirements in the MAQ-QMP. Most items and services required for the project are commercial grade in nature and no special procurement requirements or needs are necessary. For items and all services for which special requirements are necessary, the Task Leader and project members will identify such items or services.

## ***Section 8***

### **Inspection and Acceptance Testing**

#### **Inspection and Acceptance Testing**

---

**Policy**

This project does not require inspection and acceptance testing. Any materials or services procured by other organizations for activities that are related to Be-NESHAP compliance will be inspected and/or tested prior to acceptance for use in monitoring. Most supplies used during performance of monitoring are commercial grade in nature and require no special acceptance practices or procedures.

## ***Section 9***

### **Management Assessment**

#### **Project Management Assessments**

---

**Internal assessments**

The Group conducts internal management assessments of all projects and programs in the group in accordance with requirements in the Quality Management Plan. The Group Leader will perform an assessment of the effectiveness of the project effort periodically. Assessments of the project are documented and filed as records.

---

**Responding to assessments**

When violations of requirements are found during a management assessment, a deficiency report is initiated to document the violation. Corrective actions are tracked and documented in accordance with MAQ-026, "Deficiency Reporting and Correcting."

## ***Section 10***

### **Independent Assessment**

#### **Project Assessments**

---

**Policy**

The Be-NESHAP Compliance project will undergo periodic audits and assessments as required under the Title V Operating Permit project.

---

**Responding to assessments**

When violations of requirements are found during an audit or assessment, a deficiency report is initiated to document the violation. Corrective actions are tracked and documented in accordance with MAQ-026, “Deficiency Reporting and Correcting.”

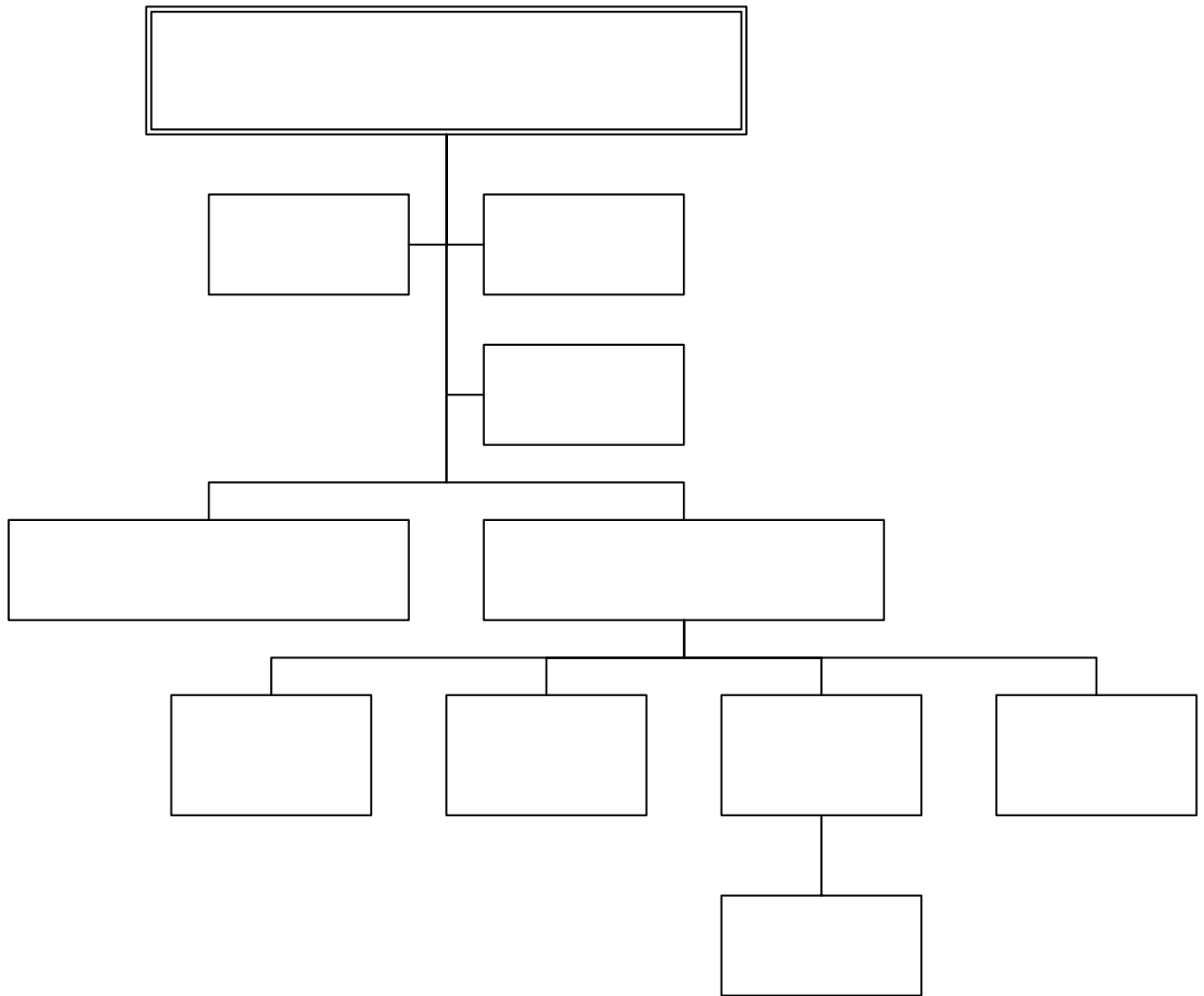
[Click here to record “self-study” training to this procedure.](#)





## *Appendix A*

### Be-NESHAP Compliance Project Organization Chart



Meteorolog



## ***Appendix B***

### **References**

#### Requirements, guidance, and other non-RRES-MAQ documents:

Title 40 Code of Federal Regulations Part 61, Subpart A, “General Provisions”

Title 40 Code of Federal Regulations Part 61, Subpart C, “National Emission Standard for Beryllium”

DOE Order 414.1A, “Quality Assurance,” issued November 24, 1998 (supersedes DOE Order 5700.6C, “Quality Assurance”)

#### Group RRES-MAQ Air Quality documents:

RRES-MAQ-BM, “Quality Assurance Project Plan for Beryllium Stack Monitoring at TA-3-141”

RRES-MAQ-OP, “Quality Assurance Project Plan for the Operating Permit Project”

RRES-MAQ-QMP, “Quality Management Plan for the Air Quality Group (RRES-MAQ)”

RRES-MAQ-022, “Preparation, Review, and Approval of Procedures”

RRES-MAQ-024, “Personnel Training”

RRES-MAQ-025, “Records Management”

RRES-MAQ-026, “Deficiency Reporting and Correcting”

RRES-MAQ-029, “Management Assessments”

RRES-MAQ-030, “Document Distribution”

RRES-MAQ-034, “Network Server Backup Tape Rotation, Storage, and Archiving”

RRES-MAQ-301, “Review of New or Modified Air Emission Sources”



## ***Appendix C***

### **Source Operators**

<b>Type</b>	<b>Location</b>	<b>Organization</b>
Permitted	TA-03-141, Be Test Facility	MST-6
Permitted	TA-35-213, Target Fabrication Facility	MST-7
Permitted	TA-55-PF4, Pu Facility	
	---machining operations	NMT-5
	---metallography operations	NMT-16
	---furnace operations	NMT-15
Registered	TA-03-29, CMR Wing 2	NMT-16
Registered	TA-03-66, Sigma	MST-OPS
Registered	TA-35-87	P-24
Registered	TA-16-207	ESA-WR